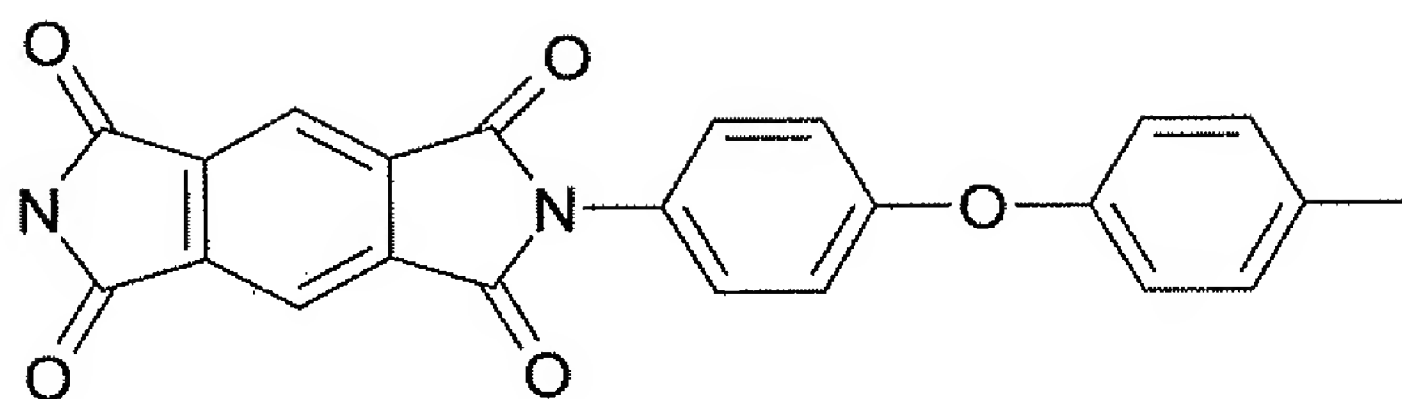


This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented): An alignment layer for aligning liquid crystal molecules, said alignment layer comprising: (a) a polymer film formed from a polymer and (b) at least one reactive mesogen additive in monomeric, oligomeric or polymeric form within said polymer film, wherein said at least one reactive mesogen additive is not said polymer used to form said polymer film, and wherein, after preparation of said alignment layer, said alignment layer contains unreacted polymerizable groups in said at least one reactive mesogen additive.
2. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer comprises less than 50 % by weight of said at least one reactive mesogen additive.
3. (Previously Presented): An alignment layer according to claim 1, wherein said at least one reactive mesogen additive is present in monomeric or oligomeric form in the alignment layer after the preparation of said alignment layer.
4. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer is obtainable from a precursor material comprising at least one reactive mesogen.
5. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer is a solvent processed film wherein said alignment layer is formed from a solution of said polymer.
6. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer comprises a polyimide film and said at least one reactive mesogen additive within said polyimide film, and said alignment layer is obtained from a precursor solution of polyimide precursor and said at least one reactive mesogen additive.
7. (Previously Presented): An alignment layer according to claim 6, wherein said polyimide film has repeating units of formula A

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A

8. (Previously Presented): An alignment layer according to claim 5, wherein said alignment layer is a solvent processed cellulose based film.

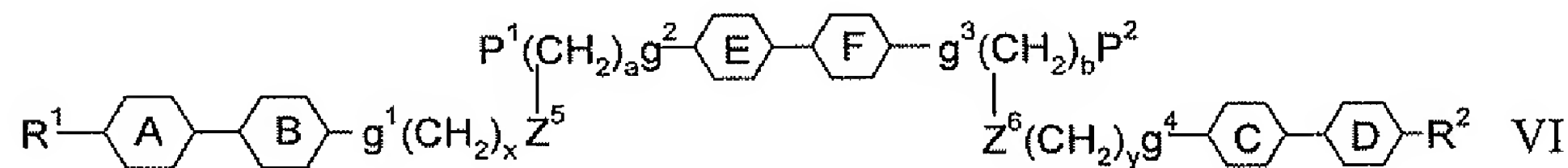
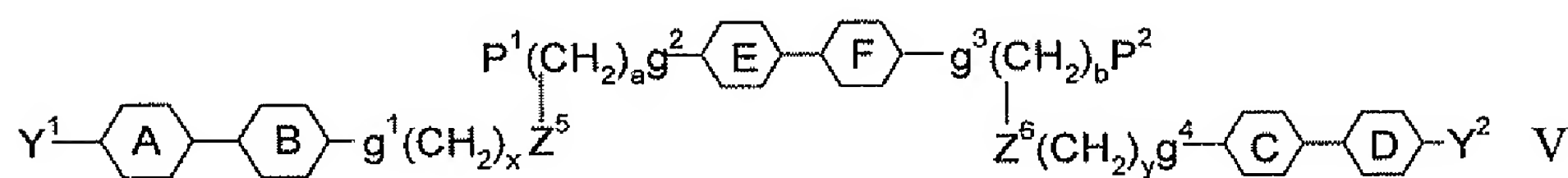
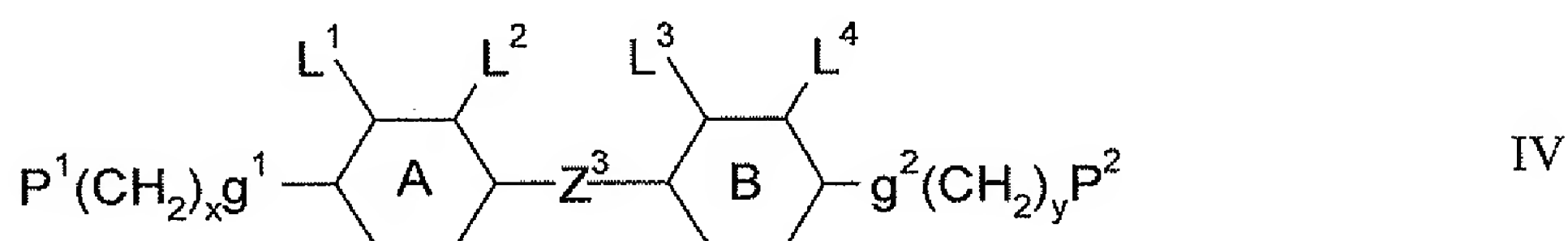
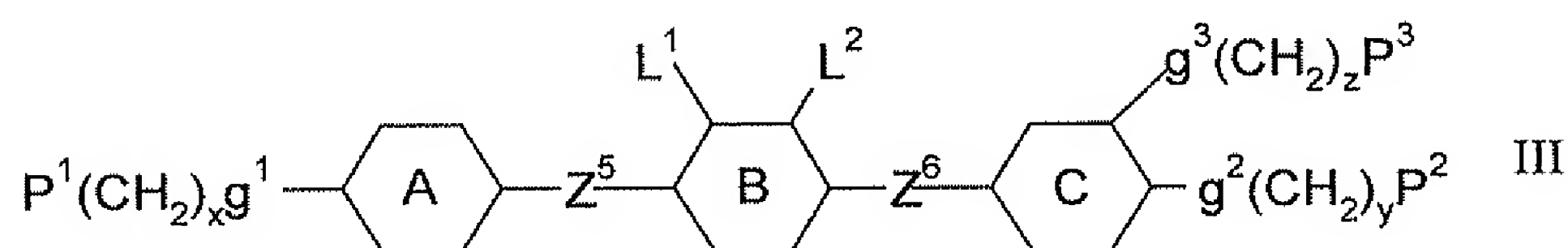
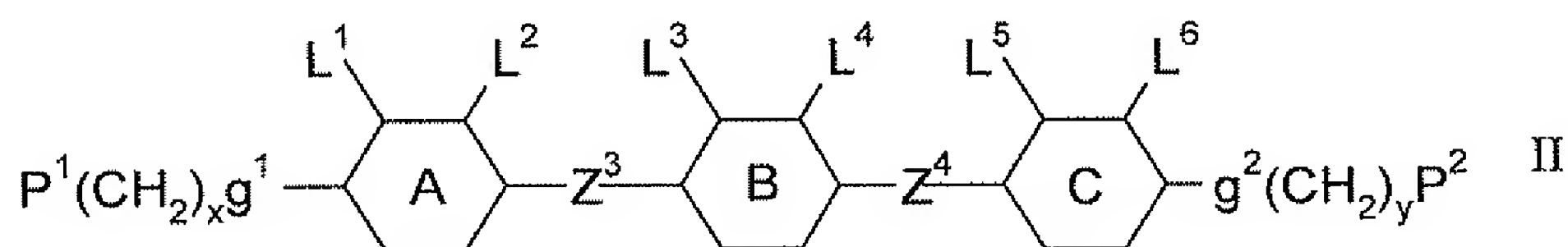
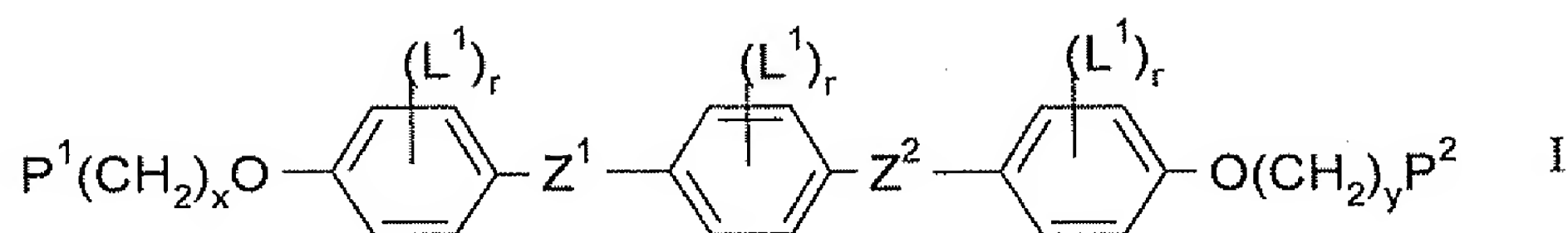
9. (Previously Presented): An alignment layer according to claim 1, wherein said polymer film is a triacetate cellulose (TAC) or diacetate cellulose (DAC) film.

10. (Previously Presented): An alignment layer for aligning liquid crystal molecules, wherein said alignment layer comprises: (a) a command layer comprising one or more compounds selected from photochromic compounds, isomerizable compounds, chromophores and dyes, wherein changes of the chemical structure and/or the orientational direction of said one or more compounds induce a specific alignment of a liquid crystal material coated onto said layer; and (b) at least one reactive mesogen additive in monomeric, oligomeric or polymeric form within said command film, wherein, after preparation of said alignment layer, said alignment layer contains unreacted polymerizable groups in said at least one reactive mesogen additive.

11. (Previously Presented): An alignment layer according to claim 10, wherein said one or more compounds are selected from derivatives of azobenzene, stilbenes, spiropyran, spirooxadines, α -hydrazono- β -ketoesters, cinnamate, retinylidene, chalcone, coumarins, benzylidenephthalimidines, benzylideneacetophenones, diphenylacetylene, and stilbazoles.

12. (Previously Presented): An alignment layer according to claim 1, wherein said at least one reactive mesogen additive is of one of the following formulae:

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wherein

P^1 , P^2 and P^3 are each, independently of each other, a polymerizable group,

Z^1 and Z^2 are each, independently of each other, -O-, -S-, -CO-, -COO-, -OCO-, -O-COO-, -OCH₂-, -CH₂O-, -CH₂CH₂-, -C≡C-, -CH=CH-COO-, -OCO-CH=CH- or a single bond,

Z^3 and Z^4 are each, independently of each other, -COO-, -OCO-, -CH₂CH₂-, -CH₂O-, -OCH₂-, -CH=CH-, -CF=CF-, -C≡C- or a single bond,

Z^5 and Z^6 are each, independently of each other, -O-, -COO-, -OCO-, -CH₂CH₂-, -CH₂O-,

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-OCH₂- or a single bond,

Y¹ and Y² are each, independently of each other, a polar group,

R¹ and R² are each, independently of each other, an unpolar alkyl or alkoxy group,

A, B, C and D are each, independently of each other, 1,4-phenylene that is optionally mono-, di- or trisubstituted by L¹, L², L³, L⁴, L⁵, L⁶ or 1,4-cyclohexylene,

L¹, L², L³, L⁴, L⁵ and L⁶ are each, independently of each other, H, F, Cl, CN or an optionally halogenated alkyl, alkoxy, alkylcarbonyl, alkoxycarbonyl or alkoxycarbonyloxy group with 1 to 7 C atoms,

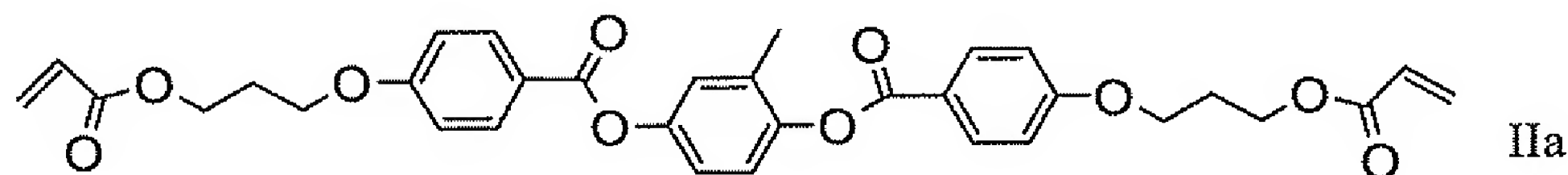
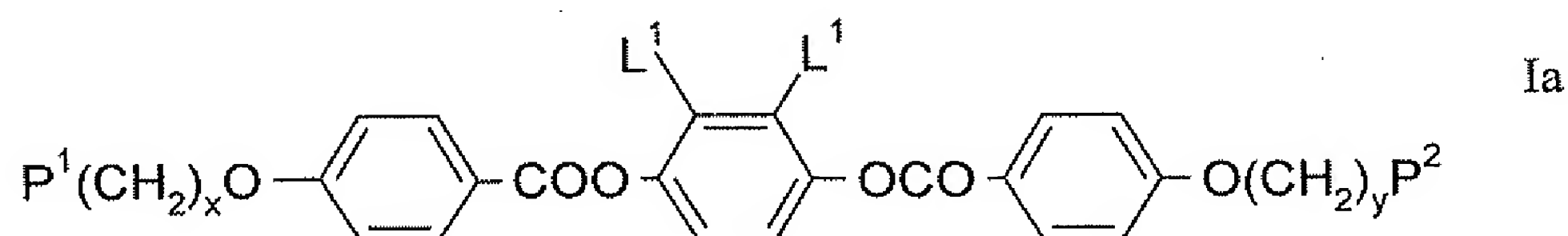
r is 0, 1, 2, 3 or 4,

x and y are each, independently of each other, an integer from 1 to 12,

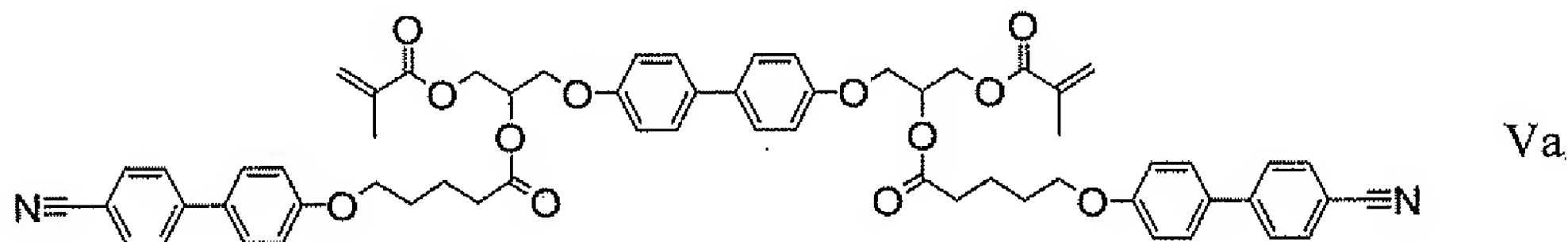
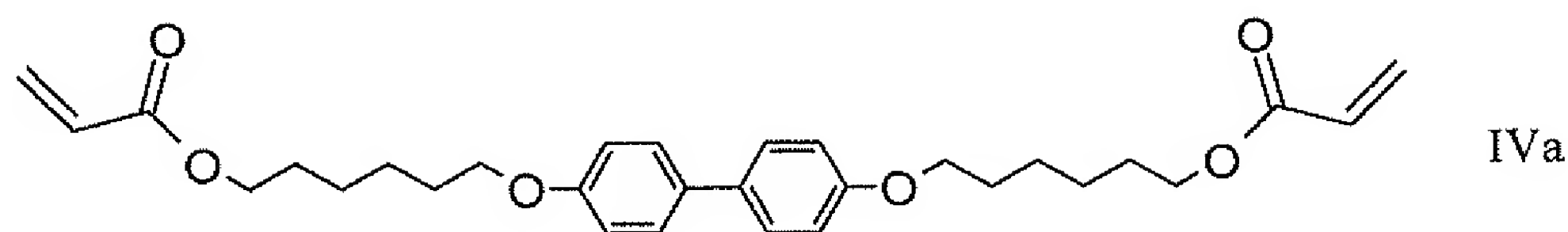
z is 1, 2 or 3, and

g¹, g², g³ and g⁴ are each, independently of each other, a single bond, -O-, -COO- or -OCO-.

13. (Previously Presented): An alignment layer according to claim 12, wherein said at least one reactive mesogen additive is of one of the following formulae:



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and the polymer film is a TAC or DAC film.

14. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer is obtainable from a precursor material that comprises 0.5 to 4 % by weight of said at least one reactive mesogen.

15. (Currently Amended): A polymer precursor for preparing an alignment layer according to claim 1, said polymer precursor comprising comprises said at least one reactive mesogen additive and a polyimide said polymer or a precursor of said polyimide polymer.

16. (Cancelled):

17. (Previously Presented): A laminate comprising an alignment layer according to claim 1 and a film comprising a polymerized or crosslinked liquid crystal material.

18. (Previously Presented): A method of preparing a laminate, said method comprising:

providing a layer of a polymerizable liquid crystal material onto an alignment layer according to claim 1, optionally aligning the liquid crystal material into uniform orientation, and polymerizing or crosslinking the liquid crystal material.

19. (Previously Presented): In an optical, electrooptical, information storage, decorative and security device, the improvement wherein said device contains an alignment layer according to claim 1.

20. (Previously Presented): An optical component or device comprising at least one alignment layer according to claim 1.

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21. (Previously Presented): A liquid crystal display comprising at least one alignment layer according to claim 1.
22. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer comprises less than 20 % by weight of said at least one reactive mesogen additive.
23. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer comprises less than 10 % by weight of said at least one reactive mesogen additive.
24. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer comprises less than 5 % by weight of said at least one reactive mesogen additive.
25. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer has a birefringence of less than 0.05.
26. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer has a birefringence of less than 0.005.
27. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer is obtained from a polymer precursor or polymer precursor solution, to which said at least one reactive mesogen is added before processing or polymerizing.
28. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer is obtained by adding said at least one reactive mesogen to the polymer.
29. (Previously Presented): An alignment layer according to claim 12, wherein said alignment layer is obtainable from a precursor material that comprises 0.5 to 4 % by weight of said at least one reactive mesogen.
30. (Previously Presented): An alignment layer according to claim 12, wherein said alignment layer is obtainable from a precursor material that comprises 1 to 2 % by weight of said at least one reactive mesogen.

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31. (Previously Presented): An alignment layer according to claim 3, wherein said at least one reactive mesogen additive is present in monomeric form in the alignment layer after the preparation of said alignment layer.

32. (Previously Presented): An alignment layer according to claim 14, wherein said alignment layer is obtainable from a precursor material that comprises 1 to 2 % by weight of said at least one reactive mesogen.

33. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer is obtained from a precursor material comprising said at least one reactive mesogen and material for forming said polymer film, and wherein when said polymer film is subsequently being formed said at least one reactive mesogen is physically trapped within said polymer..

34. (Previously Presented): An alignment layer according to claim 33, wherein said alignment layer is obtained by applying to a substrate a precursor material comprising a solution of the polymer used to form said polymer film and wherein said solution further contains said at least one reactive mesogen, and then the solution is heated to remove excess solvent.

35. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer is obtained by applying to a substrate a precursor material comprising said at least one reactive mesogen and a polymer precursor for forming said polymer film, and then subjecting the precursor material to polymerization.

36. (Previously Presented): An alignment layer according to claim 23, wherein said alignment layer has a birefringence of less than 0.05.

37. (Previously Presented): An alignment layer according to claim 1, wherein said alignment layer or precursor material thereof, before addition of said at least one reactive mesogen, is non-mesogenic and has a birefringence Δn of < 0.01 .

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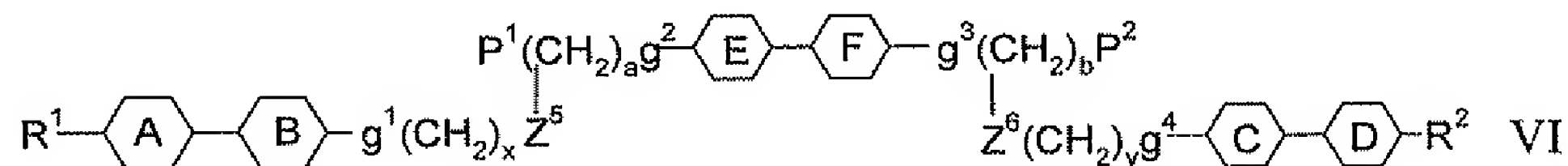
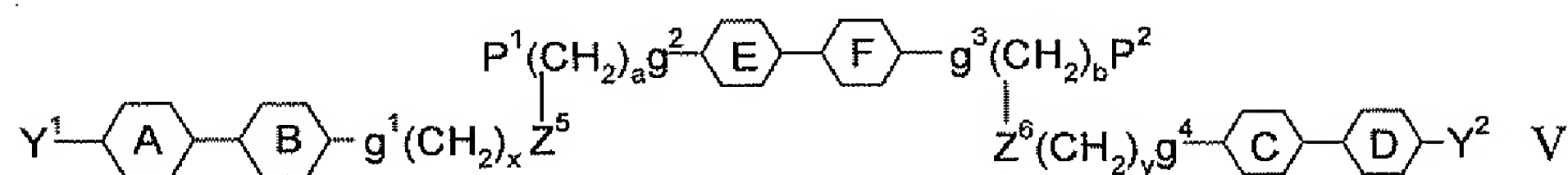
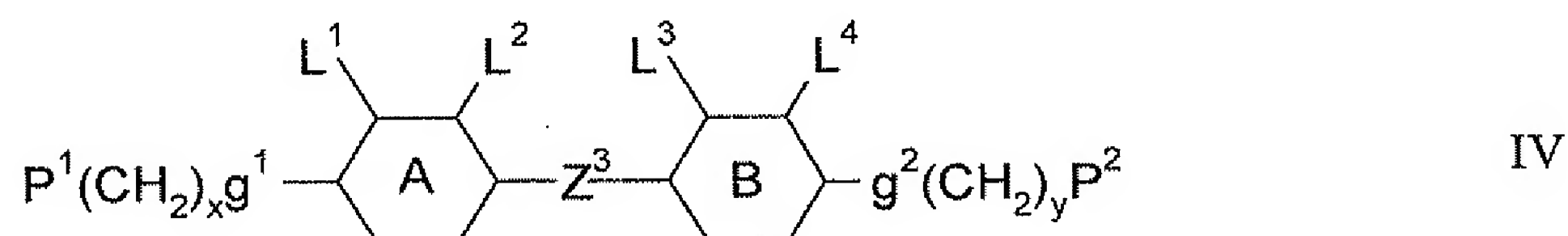
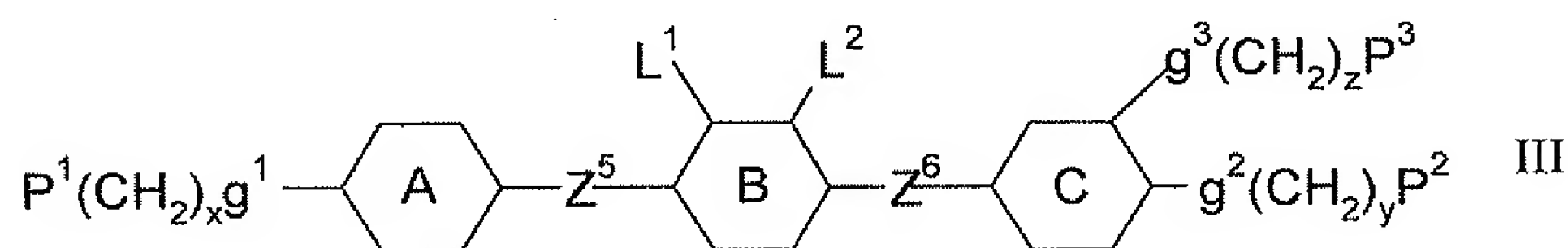
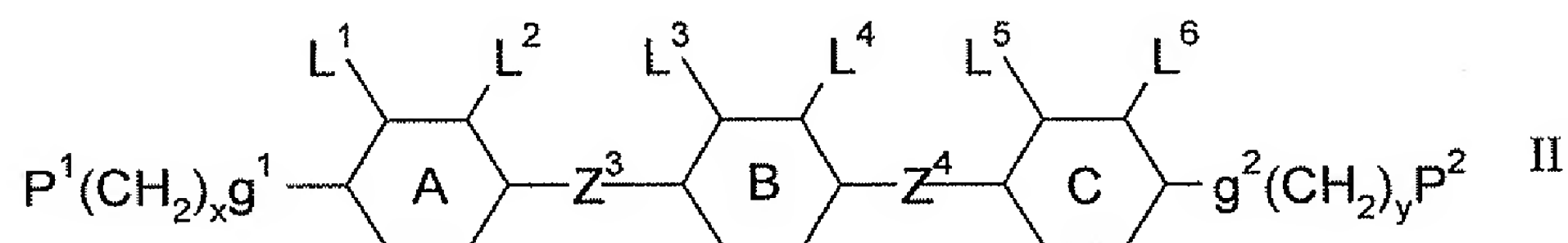
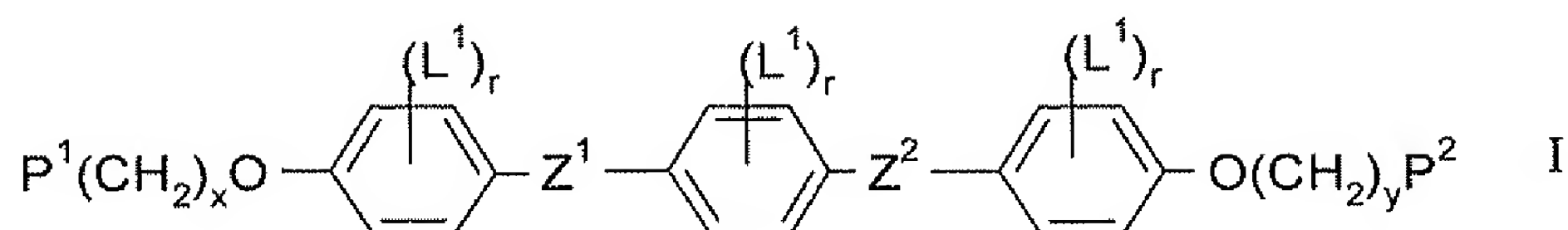
38. (Previously Presented): An alignment layer for aligning liquid crystal molecules, said alignment layer comprising: (a) a polymer film formed from a polymer and (b) at least one reactive mesogen additive in monomeric or oligomeric form within said polymer film, wherein, after preparation of said alignment layer, said alignment layer contains unreacted polymerizable groups in said at least one reactive mesogen additive.

39. (Previously Presented): An alignment layer for aligning liquid crystal molecules, said alignment layer comprising:

(a) a polymer film formed from a polymer, wherein said polymer film is a polyimide film or a solvent processed cellulose based film, and

(b) at least one reactive mesogen additive in monomeric, oligomeric or polymeric form within said polymer film, wherein, after preparation of said alignment layer, said alignment layer contains unreacted polymerizable groups in said at least one reactive mesogen additive,

wherein said at least one reactive mesogen additive is of one of the following formulae:



wherein

P^1 , P^2 and P^3 are each, independently of each other, a polymerizable group,

Z^1 and Z^2 are each, independently of each other, -O-, -S-, -CO-, -COO-, -OCO-, -O-COO-, -OCH₂-, -CH₂O-, -CH₂CH₂-, -C≡C-, -CH=CH-COO-, -OCO-CH=CH- or a single bond,

Z^3 and Z^4 are each, independently of each other, -COO-, -OCO-, -CH₂CH₂-, -CH₂O-, -OCH₂-, -CH=CH-, -CF=CF-, -C≡C- or a single bond,

Z^5 and Z^6 are each, independently of each other, -O-, -COO-, -OCO-, -CH₂CH₂-, -

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CH₂O-, -OCH₂- or a single bond,

Y¹ and Y² are each, independently of each other, a polar group,

R¹ and R² are each, independently of each other, an unpolar alkyl or alkoxy group,

A, B, C and D are each, independently of each other, 1,4-phenylene that is optionally mono-, di- or trisubstituted by L¹, L², L³, L⁴, L⁵, L⁶ or 1,4-cyclohexylene,

L¹, L², L³, L⁴, L⁵ and L⁶ are each, independently of each other, H, F, Cl, CN or an optionally halogenated alkyl, alkoxy, alkylcarbonyl, alkoxycarbonyl or alkoxycarbonyloxy group with 1 to 7 C atoms,

r is 0, 1, 2, 3 or 4,

x and y are each, independently of each other, an integer from 1 to 12,

z is 1, 2 or 3, and

g¹, g², g³ and g⁴ are each, independently of each other, a single bond, -O-, -COO- or -OCO-.

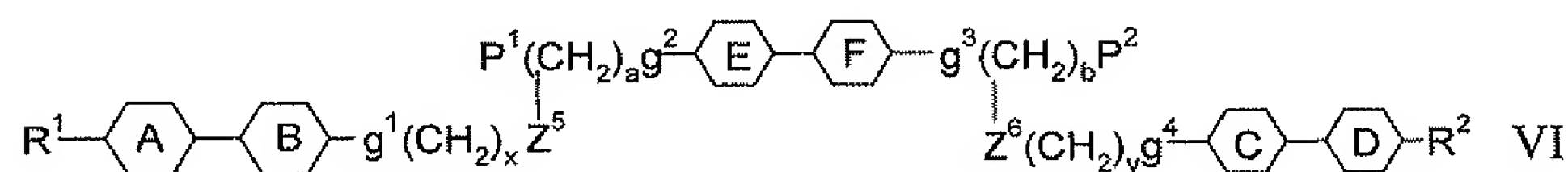
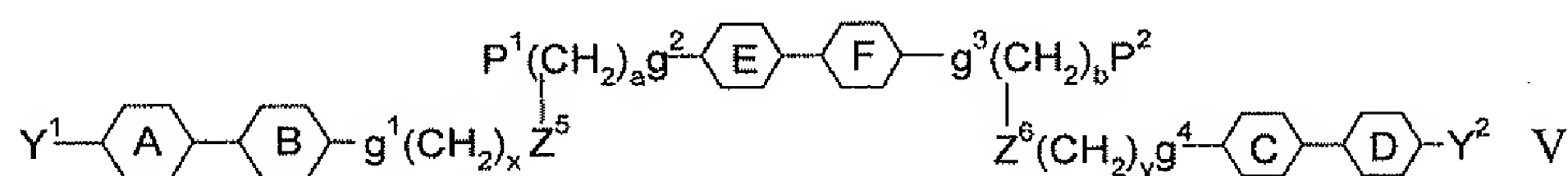
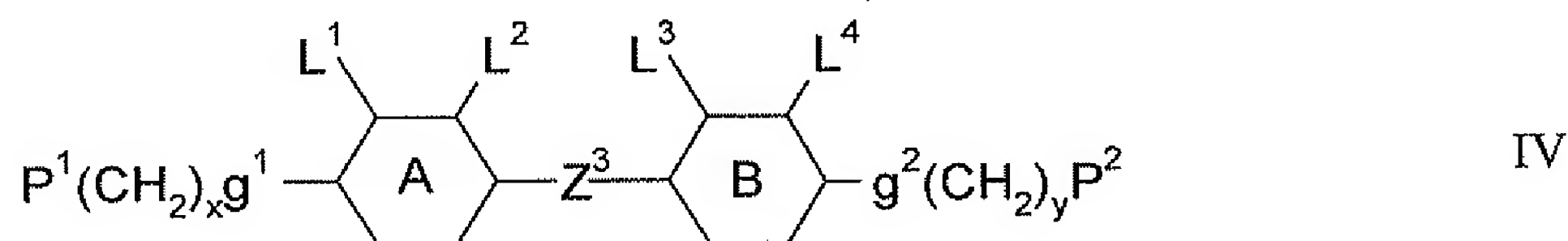
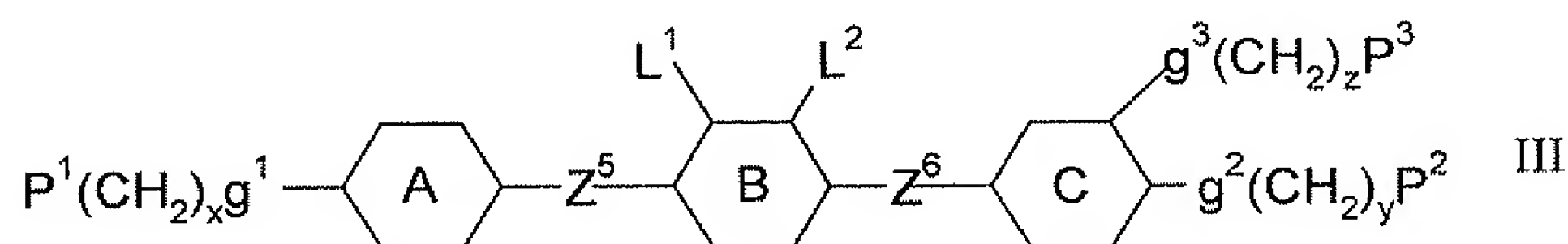
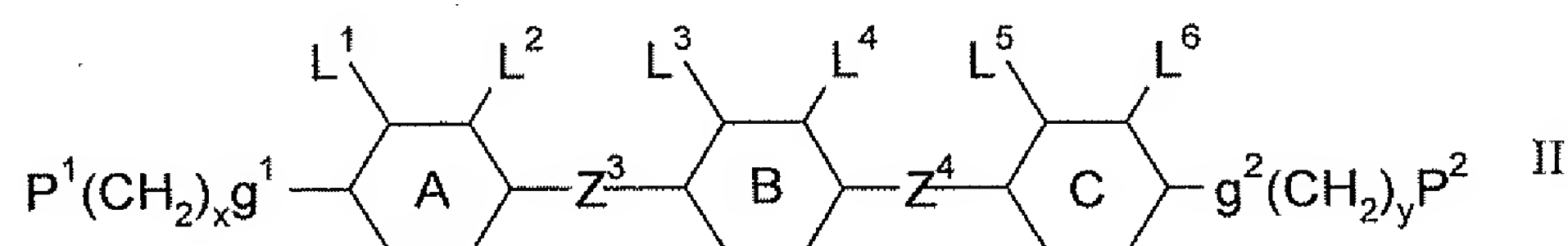
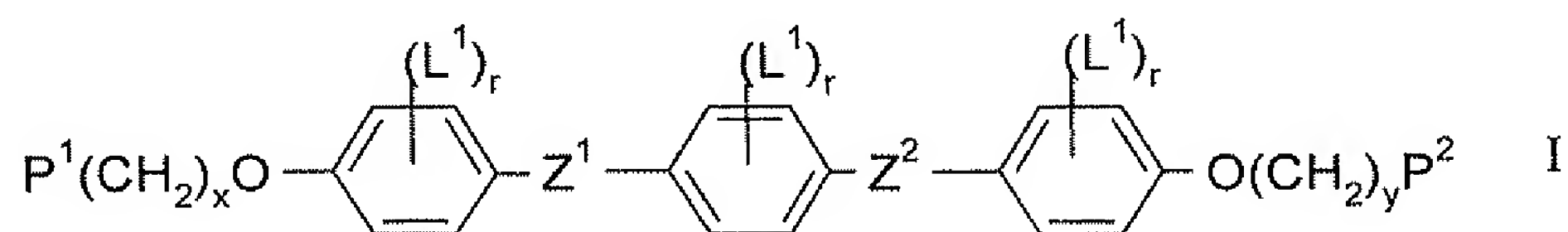
40. (Previously Presented): An alignment layer for aligning liquid crystal molecules, said alignment layer comprising: (a) a polymer film formed from a polymer and (b) at least one reactive mesogen additive in monomeric, oligomeric or polymeric form within said polymer film, wherein said at least one reactive mesogen additive contains unreacted polymerizable groups, and said at least one reactive mesogen additive is added to the polymer after polymerization thereof as a plasticizer to improve processability of the polymer.

41. (Previously Presented): An alignment layer for aligning liquid crystal molecules, said alignment layer comprising: (a) a polymer film formed from a polymer and (b) at least one reactive mesogen additive in monomeric, oligomeric or polymeric form within said polymer film, wherein said at least one reactive mesogen additive is not said polymer used to form said polymer film, and wherein, after preparation of said alignment layer, said alignment layer contains unreacted polymerizable groups in said at least one reactive mesogen additive, wherein said alignment layer comprises less than 5 % by weight of said at least one reactive mesogen additive.

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42. (New): An polymer precursor according to claim 15, wherein said polymer precursor comprises less than 50 % by weight of said at least one reactive mesogen additive.

43. (New): A polymer precursor according to claim 15, wherein said at least one reactive mesogen additive is of one of the following formulae:



wherein

P^1 , P^2 and P^3 are each, independently of each other, a polymerizable group,

Z^1 and Z^2 are each, independently of each other, -O-, -S-, -CO-, -COO-, -OCO-, -O-COO-,

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-OCH₂-, -CH₂O-, -CH₂CH₂-, -C≡C-, -CH=CH-COO-, -OCO-CH=CH- or a single bond,

Z³ and Z⁴ are each, independently of each other, -COO-, -OCO-, -CH₂CH₂-, -CH₂O-, -OCH₂-, -CH=CH-, -CF=CF-, -C≡C- or a single bond,

Z⁵ and Z⁶ are each, independently of each other, -O-, -COO-, -OCO-, -CH₂CH₂-, -CH₂O-, -OCH₂- or a single bond,

Y¹ and Y² are each, independently of each other, a polar group,

R¹ and R² are each, independently of each other, an unpolar alkyl or alkoxy group,

A, B, C and D are each, independently of each other, 1,4-phenylene that is optionally mono-, di- or trisubstituted by L¹, L², L³, L⁴, L⁵, L⁶ or 1,4-cyclohexylene,

L¹, L², L³, L⁴, L⁵ and L⁶ are each, independently of each other, H, F, Cl, CN or an optionally halogenated alkyl, alkoxy, alkylcarbonyl, alkoxycarbonyl or alkoxycarbonyloxy group with 1 to 7 C atoms,

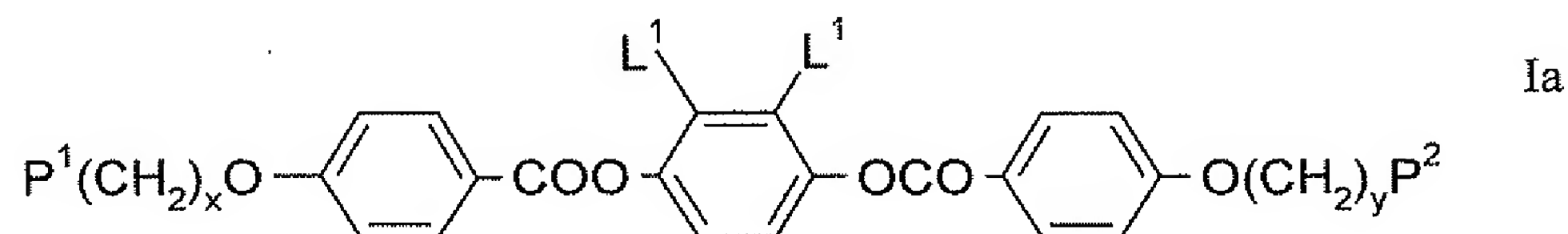
r is 0, 1, 2, 3 or 4,

x and y are each, independently of each other, an integer from 1 to 12,

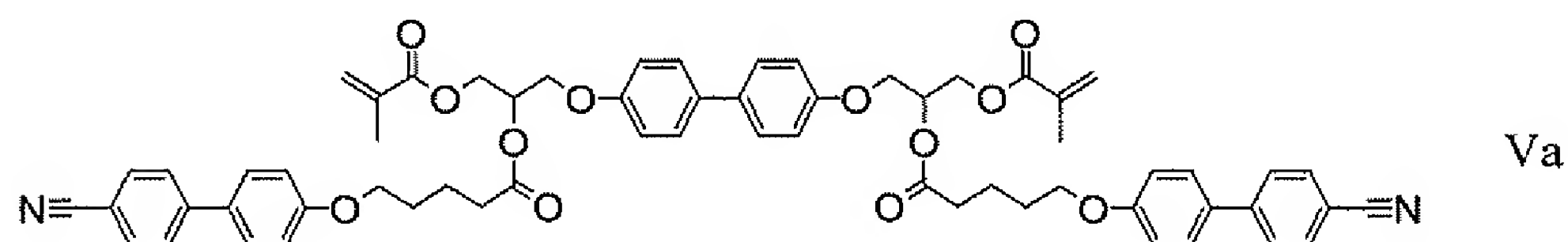
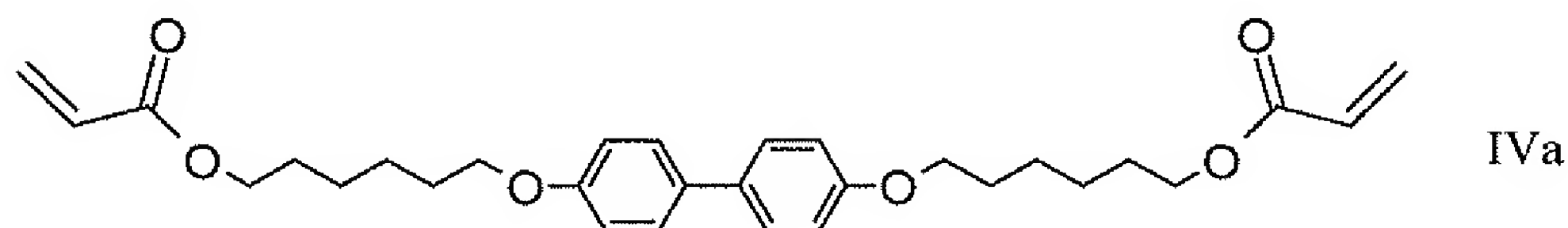
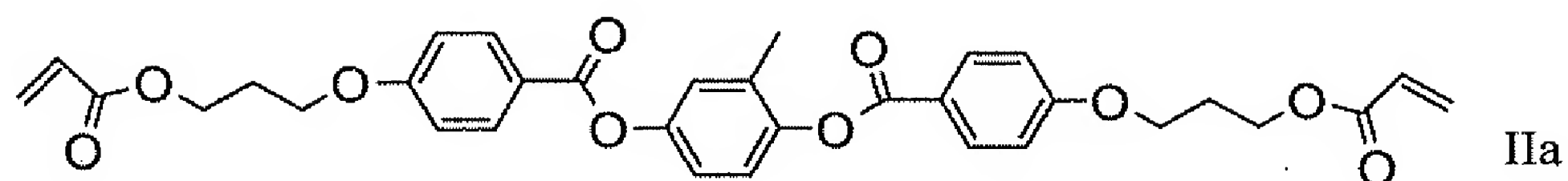
z is 1, 2 or 3, and

g¹, g², g³ and g⁴ are each, independently of each other, a single bond, -O-, -COO- or -OCO-.

44. (New): A polymer precursor according to claim 43, wherein said at least one reactive mesogen additive is of one of the following formulae:



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and the polymer film is a TAC or DAC film.

45. (New): A polymer precursor according to claim 15, wherein said precursor can form an alignment layer having a birefringence of less than 0.05.

46. (New): A polymer precursor according to claim 15, wherein said precursor can form an alignment layer having birefringence of less than 0.005.

47. (New): A polymer precursor according to claim 15, wherein said precursor comprises 0.5 to 4 % by weight of said at least one reactive mesogen.

48. (New): A polymer precursor according to claim 15, wherein said precursor comprises 1 to 2 % by weight of said at least one reactive mesogen.